

PRESS RELEASE



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New Army Concept Vehicle Enters Advanced Testing Phase at Detroit Arsenal

- *Ultra Light Vehicle (ULV) is U.S. Army's latest "research prototype"*
- *Hybrid tactical vehicle targets safety, fuel-efficiency and versatility*
- *Using commercial technologies, only 16 months from design to build*

U.S. ARMY DETROIT ARSENAL, WARREN, Mich. – While no military strategist can predict with absolute certainty where future conflicts will happen, Army researchers have designed the Ultra Light Vehicle (ULV) Research Prototype to meet a wide range of challenges by making it fuel efficient, versatile and survivable in nearly any environment.

At the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC), final testing is beginning on the ULV vehicle platform with technologies to equip Soldiers for missions across a full spectrum of mobility challenges while keeping occupants safe and using fuel efficiently.

Funded by the Office of the Secretary of Defense, the ULV project was set up to design, develop and build three identical lightweight tactical research prototype vehicles emphasizing survivability for occupants and meeting four research objectives:

- Payload – 4,500 lbs
- Performance – at 14,000 lbs curb weight
- Protection – comparable to the currently fielded Mine-Resistant Ambush-Protected (MRAP) vehicles
- Price – \$250,000 each in a hypothetical 5,000-unit production run.



The Army's Ultra Light Vehicle Research Prototype aims to be safe, fuel-efficient and versatile.

TARDEC's Ground System Survivability group partnered with non-traditional defense contractors bringing the engineering expertise of both to the project. In only 16 months, the team moved from design to prototype.

"The Army's approach was to create synergistic survivability," explained TARDEC GSS Associate Director Steve Knott. "Soft deliverables — such as data and lessons learned — and hard deliverables — such as test assets and spare automotive components — will help shape, inform and support tactical vehicle programs, technology demonstrator efforts and/or TARDEC Innovation Projects to maximize the overall return on investment."

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TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

The team produced three vehicles: two will be used for mobility, mine blast and ballistic survivability testing and the third is moving into TARDEC's Ground Systems Power and Energy Laboratory (GSPEL) for mobility and fuel efficiency testing. Results are expected to be available in early 2014. Vehicle information — including specifications, photos and videos — is located here: <http://tardec.army.mil/ulv/index.html>

Highlights of ULV's powertrain, design, communications and protection, focusing on mobility and survivability, include:

Powertrain – With two electric motors (front and rear) the ULV's hybrid powertrain improves both mobility and survivability. By eliminating the need for a driveshaft, the underbody can be designed to perform well in a blast event. And either of the electric motors can power the vehicle, providing redundancy. A lightweight diesel engine powers the electric motors and also enables:

- Immediate launch
- Stealth drive
- Silent watch
- Exportable power generation
- High torque at low/near zero speeds
- Improved fuel economy

Design – ULV's final design was developed by lead contractor Hardwire LLC (www.hardwirellc.com). The relatively spacious crew-accommodating cab provides increased interior space than similarly equipped tactical vehicles. Remote-mounted and remote-controlled vehicle electronics reduce HVAC loads and create space. "Clamshell" front and rear doors open away from the B-pillar creating a protected area for Soldiers to exit.

"The cab is designed to have seven egress points facilitated by quick-release and removable components, stowage space for personnel and mission-specific items and 360-degree situational awareness through front- and rear-mounted ultra wide-angle thermal imagers," explained TARDEC engineer Vladimir Gendlin.

Communications – ULV features lower-weight Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) technologies focused on warfighter needs.

Survivability/Ballistic Protection – The hybrid design allows for a "clean underbody" through the elimination of various automotive components potentially allowing for blast-mitigation technologies to perform uninhibited during a blast event. This design provides added opportunities to integrate various blast-mitigating kits under the hull for higher threat levels. Interior technologies include a crushable floating floor system that decouples the crew's feet and legs from the steel hull and absorbs energy, adjustable stroking seats, five-point restraint systems, and spatial accommodations to mitigate head impacts and flail injuries. ULV also utilizes high-strength steels and advanced composite materials offering lightweight ballistic protection from a number of threats to include a newly developed transparent ceramic armor system to keep the vehicle's overall weight down.

ABOUT TARDEC

Headquartered at the U.S. Army Detroit Arsenal in Warren, Mich., TARDEC is a major research, development and engineering center for the Army Materiel Command's Research, Development and Engineering Command and is an enterprise partner in the TACOM Life Cycle Management Command.

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